CECOM Material Safety Data Sheet

NC1: Nickel-Cadmium (Ni-Cd), para. 4-11

Note: NC1: For batteries with vent-filler caps

1. PRODUCT AND MANUFACTURER:

Item Identification: Hazardous Characteristic Code: C1

National Stock Number: (for Agency use ONLY)

Type Number: Weight of Item(pounds):

Common Name: Nickel-Cadmium battery (vented) Item Dimensions (inches):

Contract Number:

Manufacturer's Identification:

Manufacturer's Name and Address and ZIP code :

Preparer's Federal Supply Code (CAGE): 81349

Preparer: USA Communications-Electronics Command
Directorate of Safety Risk Management
ATTN: AMSEL-SF-SEP
Ft. Monmouth, New Jersey 07703-5024

Emergency & Information telephone numbers: CML: 732-427-3112, DSN: 987-3112
800-793-4093

2. COMPOSITION OF ITEM:

Hazardous & Nonhazardous Components (Chemical Name, (Symbol), and [CAS#])	Exposure Limits* OSHA PEL	ACGIH	Other Recommended Limits	% by Item Weight
Cadmium (Cd)[7440-43-9] &		0.002		~ 10-25
Cadmium hydroxide ($Cd(OH_2)$)[21041-95-2]		0.002		
Nickel (Ni)[7440-02-0] &		1		20-30
Nickel hydroxide ($Ni(OH_2)$)[12054-48-7]		0.1		
Potassium hydroxide (~30%sol., KOH)[1310-58-3]		2 (C)		<10
Cobalt (Co)[7440-48-4] &		0.02		<1-2
Cobalt Hydroxide ($Co(OH_2)$)[1307-86-4]		0.02		

* All values reported in mg/m^3 unless otherwise specified.

3. PHYSICAL AND CHEMICAL PROPERTIES: N/A for item

Boiling Point: Melting Point:

Vapor Pressure(mmHg): Vapor Density(Air=1):

Evaporation Rate (butyl acetate=1):

Solubility in Water: Specific Gravity(water=l):

pH:

Odor and Appearance:

4. STABILITY AND REACTIVITY:

Chemical Stability: Stable: X Unstable:
Conditions to avoid: Do Not abuse, mutilate or short circuit the battery. Do Not overcharge.
Incompatible with acidic materials, and DO NOT store in the same stacks with Lead-acid batteries.

Incompatibility: Incompatible with acidic materials. Store in separate stacks from hazardous materials.

Hazardous Decomposition Products: When exposed to extreme heat/fire batteries may rupture leaking corrosive material and/or emit toxic fumes. Burning batteries may emit toxic fumes of cadmium, nickel and potassium oxide.

Hazardous Polymerization: May Occur: Will not Occur: X
Conditions to avoid:

5. HEALTH HAZARD IDENTIFICATION:

Emergency Overview (including **Signs** and **Symptoms, Route(s) of Entry,** etc.)
Intact batteries present no specific hazards.

Acute Health Hazards (e.g., Inhalation, Eye Contact, Skin Contact, Ingestion, etc.)**:**
Burning batteries: AVOID inhalation of toxic fumes. Burning batteries emit toxic fumes, which are irritating to the lungs.
Leaking batteries: AVOID exposure to leaking electrolyte, it can cause severe irritation and/or damage to the skin, mucous membrane or eyes.

Chronic Health Effects (e.g., Carcinogenicity, Teratology, Reproduction, Mutagenicity, etc.)**:**
Cadmium: Human carcinogenic agent.
Nickel: Human carcinogenic agent.
Cobalt: Suspected human carcinogenic agent.

Medical Conditions Generally Aggravated by Exposure: None.

6. FIRST AID MEASURES:

Inhalation: If battery is burning, leave the area immediately. If exposed to fumes, seek medical attention promptly.

Skin Contact: If battery electrolyte leaks on to the skin flush the affected area for at least 15 minutes with clean water. DO NOT attempt to neutralize. Seek medical attention promptly.

7. FIRE FIGHTING and EXPLOSION HAZARD DATA:

Flammable Properties: N/A
Flashpoint: Method:
Autoignition Temperature:
Flammable Limits: N/A
Lower flammable limit: Upper flammable limit:
Hazardous Combustion Products: Burning batteries may emit toxic fumes of cadmium, nickel and potassium oxide.

Extinguishing Media: Carbon dioxide (CO_2) or dry chemical fire extinguisher, 10-B:C.

Fire Fighting Instructions:

Personnel: Fight the fire in a defensive mode, while exiting the area. When using a CO_2 fire extinguisher, DO NOT re-enter the area until it has been thoroughly ventilated (i.e., purged) of the CO_2 extinguishing agent.

Firefighters: Use a self-contained breathing apparatus (SCBA).

8. ACCIDENTAL RELEASE MEASURES:

Small Spill: DO NOT use of finely divided combustibles materials (e.g., sawdust) for cleaning up spills. If batteries show signs of leaking, AVOID skin or eye contact with the material leaking from the battery. Use chemical resistant rubber gloves and non-flammable absorbent materials for clean-up. Coordinate disposition with the Installation Environmental Office.

9. HANDLING AND STORAGE:

Handling: Recharge batteries IAW methods specified in applicable technical manuals.
DO NOT:
- Overcharge this battery.
- Abuse, mutilate or short circuit the battery.
- Drain unless authorized, nor invert or spill.

Storage: Gain approval for storage areas from the Installation Fire Department. Store batteries in a cool (i.e., <130°F), dry and well ventilated area. Protect batteries from freezing.
DO NOT:
- Store batteries in direct sunlight or under hot conditions.
- Smoke and keep batteries away from open flame or heat.
- Store batteries in the same stacks with hazardous materials.
- Store batteries in office areas, or other areas where personnel congregate.

Work/Hygienic Practices: Thoroughly wash hands after cleaning-up a battery spill (i.e., leaking or venting batteries). NO eating, drinking or smoking in battery storage areas.

10. EXPOSURE CONTROL/PERSONAL PROTECTION EQUIPMENT:

Engineering Controls:

General Exhaust: Local Exhaust:

Special: If the battery is damaged and leaking, protect hands with chemical resistant rubber gloves. If the battery is burning, leave the area immediately.

Protective Equipment :

Respiratory Protection: During fire fighting firemen should use SCBA.

Skin Protection: Use chemical resistant rubber gloves, when cleaning-up leaking batteries.

11. DISPOSAL CONSIDERATIONS/ECOLOGICAL INFORMATION:

Waste Disposal Method: DO NOT incinerate.

1. Nickel-cadmium batteries are hazardous waste (HW) (i.e., D002 and D006) under Resource Conservation and Recovery Act (RCRA) regulations. No bioassay data available. All batteries will be managed IAW equipment TM requirements, and disposal/recycling will be IAW requirements under the Universal Waste Rule (i.e., USEPA regulations), state and local regulations.

2. These batteries should be recycled, if possible. Coordinate battery disposition and disposal with the Installation Environmental Office and the servicing Defense Reutilization and Marketing Office.

12. TRANSPORTATION INFORMATION: Nickel-cadmium batteries are regulated under the federal hazardous materials provisions of 49 Code of Federal Regulations (CFR) for transportation.

Applicable Regulation: 49 CFR parts 172.101 and 172.159
DOT Proper Shipping Name: Batteries, wet, filled with alkali, *electric storage*
DOT Hazard class: 8
DOT Identification Numbers: UN2794
DOT Packaging Group (PG): III
DOT Label codes: 8

Procedures: Securely package batteries to withstand conditions normal to shipping. Protect batteries against short circuiting. Package and ship IAW DOT regulations.

Special Precautions: Isolate and remove damaged and/or leaking batteries, if possible. Notify local health, safety and environmental agencies.